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Exploring Quitting Smoking Behavior Among Royal Thai Navy Personnel With The Transtheoretical Model

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Abstract

Quitting smoking is clearly important for health and it is worthwhile attempting to gain a better understanding of factors that may help or hinder the process. The purpose of this study was to explore smoking cessation behavior among RTN personnel with the Transtheoretical Model. A multi-stage random sampling was employed to obtain the sample of 553 RTN personnel who had quitting smoking experiences for at least 24 hours in the past year. Data were used to analyze the predictors by logistic regression analyses. The main findings were: (1) 41.6% were in pre-contemplation, 13.2% were in contemplation, 19.3% were in preparation, 24.1% were in action 2.4% were in maintenance. (2) different age, education and marital status groups had no significantly different in quitting smoking. (3) Length of Past Quit Attempt 1.05 (95% CI = 1.04-1.06), Family Support 1.51 (95% CI = 1.06-2.15), Conscious Raising 1.5 (95% CI = 1.06-2.15), Social Liberation .81 (95% CI = .73-.90), Self-reevaluation .84 (95% CI = 0.75-0.94), Counter Conditioning 1.15 (95% CI = 1.03-1.29) were predictive factors of quitting smoking among the RTN personnel and the best equation of logistic regression for explaining 56.5% of the variance in quitting smoking. This study provides further evidence in designing interventions, the stage of change needs to be assessed prior to application of intervention programs in order to increase and maintain quitting smoking behavior.

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1. Introduction

In Thailand, smoking is a major public health problem that demands attention. Because of smoking is the second most significant risk factor affecting health, with approximately 42,000 Thais dying from smoking-related diseases annually over the last two decades (Sitthipan, 2008). Over one-fourth (27.2%) of the Thai population smoke, the majority of whom are males (45.6%) and a smaller percentage (3.1%) are females. Also concerning is the gender disparity with males having a 10 fold prevalence compared with women (Benjakul et al., 2007). Smoking among Royal Thai Navy (RTN) personnel has been a focus of concern. Smoking prevalence in the military is higher than general population. Rate of smoking have significantly fluctuated in RTN ranging from 28.5% in 2002 to 13.37% in 2006 to 15.77% in 2007. Military leaders have expressed concern about the impact of smoking on the fitness and performance of military personnel such as smoking impairs athletic performance, increases physical injuries during training, increases in basic military training failures, and results in increases in illnesses. All of these negative outcomes affect the ability of the RTN to protect the national interests of the sea and maintain peace within the country. Nelson, Pederson, & Lewis (2009) suggested that culture shapes tobacco use and question whether the military attracts smokers or promotes smoking as a normative behavior in adapting to the military environment. The military culture differs from general populations (Nichter, 2003). Thus, an understanding of quitting smoking and factors associated with quitting smoking among the military culture is an important area of research. Quitting smoking is defined as any attempt made by individual to achieve that goal. Quitting smoking often requires multiple attempts (Li, et al., 2010), pointing to the difficulty of quitting smoking and smoking cessation. Only 2-4% of people were successful quitting smoking at the first attempt and 4.7% remained abstinent after one year of quitting (Pierce and Gilpin, 2010). To date, Transtheoretical model is the one of theoretical framework that can guide quitting smoking. The stages of change model has been used to identify, and test interventions focused on modifying different potentially problematic human behaviors, including smoking cessation. The five stages in the model are precontemplation, contemplation, preparation, action, and maintenance. Precontemplation refers to the period in which smokers are not thinking about quitting their smoking. Contemplation encompasses the time when smokers are seriously thinking about quitting smoking within the next 6 months while preparation is similar to „contemplation“ but the time is shortened to only within the next month interval. Action indicates the period (between 0 to 6 months) of actual smoking cessation. Maintenance is defined as the period 6 months after the action stage has started and continues indefinitely. Based on these stages of change, the model further describes the relationships among these stages, the processes of change, decisional balance, and self-efficacy. By definition, processes of change provide important guidelines for intervention programs serving as independent variables that people need to apply or be engaged in to move from one stage to another. There are ten sub-processes: consciousness raising, dramatic relief, environmental reevaluation, social liberation, self-reevaluation, stimulus control, helping relationships, counter conditioning, reinforcement management and self-liberation (Rigotti, Munafo, & Stead). On the other hand, decisional balance reflects the smoker's relative weighing of the pros and cons of quitting smoking and self-efficacy is defined as the belief in smoker's ability to perform the behaviors necessary for quitting smoking outcome. In addition, many factors both Western and Asian reviews had a crucial role in relation to quit smoking among adult such as age, sex, marital status, length of quit attempt and family support (Hyland, et al. 2004; Ferguson, et al. 2003; Osler and Prescott 1998,) Most of these studies have been reported from western countries, it is unclear whether the findings are applicable to the East Asian population who have a different culture especially in the military group.

2. Research Objectives

1. To identify stage of change of quitting smoking among RTN personnel.
2. To identify the predicting factors of quitting smoking among RTN Personnel.

3. Method

3.1 Sample

The participants were 553 RTN personnel who had quit smoking experience at least 24 hours in the last year. A multistage random sampling was used in this study.

3.2 Research Instruments

The stage of change questionnaire (SCQ), processes of change questionnaire (PCQ), decisional balance questionnaire (DBQ) and self-efficacy questionnaire (SEQ) were accepted for permission and translation into Thai version from Prochaska. The process of change questionnaire (PCQ) assessed 10 processes consisting of 40 items on five point Likert scale of current frequency of use in the past month. The decisional balance questionnaire (DBQ) consisting of 20 items with a 5-point Likert scale. A 20-item of self-efficacy questionnaire (SEQ) assessed self-efficacy to refrain from smoking in various situations with a 5-point Likert scale. And demographic information including age, marital status, education level, length of quit attempt and family support.

3.3 Data Analysis

The data collection began after the Human Research Board of the RTN Medical Department number RLM 014/54 had approved the study and the study period was from July 15 to September 15, 2011. Descriptive statistics were computed to summarize the participants' demographic data and the logistic regression analysis was conducted to calculate odds ratios with a 95% confidence interval of abstinence rates for each variable, with a statistical level at $\alpha = 0.05$.

4. Conceptual Framework

The conceptual framework pictured in Figure 1 summarizes important predicting factors of quitting smoking from review literatures and the Transtheoretical model construct.

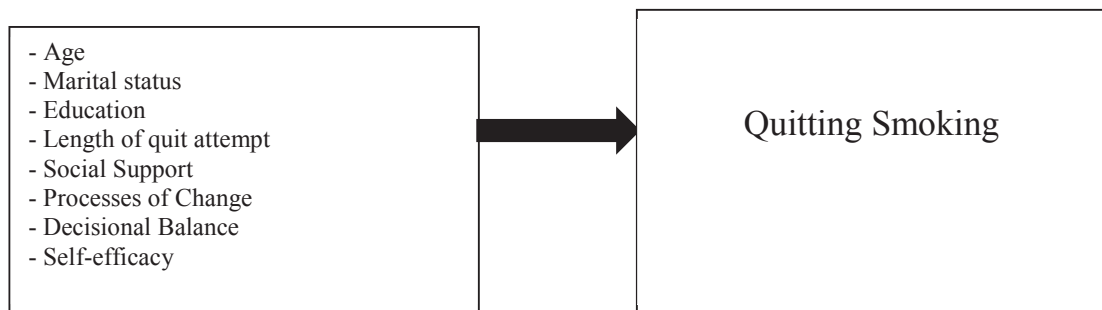


Figure 1 Conceptual Framework

5. Research Results

5.1 Smoking status and stage of change among RTN personnel:

Table 1 shows the characteristics of the 553 study subjects. 73.6% were current smokers and 26.4% were ex-smokers who were stopped smoking more than seven days. The majority of the RTN personnel's stage change was in pre-contemplation stage (41.0%), action stage (24.1%), preparation stage (19.3%), contemplation stage (13.2%), and 2.4% was in maintenance stage.

Table 1 Smoking status and stage of change among RTN personnel (n = 553)

Smoking Characteristics	Number	Percentage
Smoking status		
Current smokers	407	73.6
Ex-smokers	146	26.4
Stage of change		
Pre contemplation	227	41.25
Contemplation	73	13.20
Preparation	107	25.14
Action	133	18.26
Maintenance	13	2.35

5.2 Sample Description

Table 2 shows the characteristics of the 553 study subjects. Comparison of smoker groups, A large percentage of ex-smoker group were in the age group 25-40 years (43.15%) and older than 40 years (29.45%) and most of them were married (52.74), while a large percentage of smoker group were in the age group 25-40 years (38.08%) and younger than 25 years (36.36%). Most of smokers and ex-smokers were graduated in junior high school level (49.14%). While, different age, education and marital status groups had no significantly different of those who were ex-smokers and smokers.

Table 2 Comparison of quitting smoking of those who were ex-smokers and smokers.

Demographic characteristics	Ex-smoker (N = 146)		Smoker (N = 407)		χ^2	p-value
	N	(%)	N	(%)		
Age (years)					4.79	.091
≤ 24	40	(27.4)	148	(36.36)		
25-40	63	(43.15)	155	(38.08)		
41-60	43	(29.45)	104	(25.55)		
Marital status					4.41	.110
Single	55	(37.67)	200	(49.14)		
Married	77	(52.74)	195	(47.91)		
Widowed/	14	(9.59)	12	(2.95)		
Divorced/Separated						
Education level					4.50	.212
Junior high school	79	(54.11)	248	(60.93)		
Diploma degree	34	(23.29)	114	(28.01)		
Higher than Bachelor degree	3	(2.05)	4	(0.98)		

5.3 Predicting factors of quitting smoking among RTN personnel:

The results from logistic regression indicated that there are six significant predictors of quitting smoking among the RTN personnel (Table2). They were “length of quit attempt” (OR = 1.05, 95% CI = 1.04-1.06), “family support” (OR = 1.51, 95% CI = 1.06-2.15), “consciousness raising” (OR = 1.17, 95% CI = 1.07-1.29), “social liberation” (OR = 0.81, 95% CI = .73-.90), “self-reevaluation” (OR = 0.84, 95% CI =.75-.94), and “counter conditioning” (OR = 1.15, 95% CI = 1.03-1.29). Therefore, the best equation of logistic regression for explaining 56.5% of the variance in quitting smoking was: $\ln [\text{odds}] = -3.37 + 0.41 (\text{family support}) + 0.05 (\text{length of quit attempt}) + 0.16 (\text{consciousness raising}) - 0.21 (\text{social liberation}) - 0.17 (\text{self-reevaluation}) + 0.14 (\text{counter conditioning})$.

Table 3 Predicting factors of quitting smoking among RTN personnel (n =553)

Variable	B	S. E.	Wald	AOR	95% CI	p-value
Length of quit attempt	.05	.01	88.09	1.05	1.04-1.06	.000*
Family support	.41	.18	5.17	1.51	1.06-2.15	.023*
Consciousness raising	.16	.05	10.84	1.17	1.07-1.29	.001*
Social liberation	-.21	.06	14.29	.81	0.73-0.90	.000*
Self-reevaluation	-.17	.06	8.83	.84	0.75-0.94	.003*
Counter conditioning	.14	.06	5.85	1.15	1.03-1.29	.016*
Constant	-3.37	.73	21.48			.000*

*P-value < 0.05, Nagelkerke R Square = 0.565

6. Discussion

The majority of previous studies have shown that demographic characteristics such as gender, age, income and education level were associated with making serious quit attempts and quitting smoking but the relation between demographic characteristics and quitting smoking were not always consistent. In this study, age marital status and educational level were not significant correlated with quitting smoking among RTN personnel, because 40% of them were between 25-40 years of age. Most of them didn’t face with chronic disease and they didn’t have much more thinking about quitting smoking. Consequently, RTN personnel may interested in smoking more than quitting in this age group. Marital status was not significant correlated with quitting smoking in military group. Because of the strictness of military’s duty and life style between militaries and general population. Consequently, RTN personnel may spend times with friends and colleague more than spouse and family. In addition, they have to transfer to many placed for serving the RTN and sometimes they may work in the battle ship or military fields far away from their families. For education level , almost 60 percent of them were graduated in junior high school. The less educated have been regarded as special target groups for quitting smoking. There is some support for this view, because cessation rates are generally higher among the better educated. Conversely, Family support was a one of six significant predictors of quitting smoking among the RTN personnel. Several epidemiological studies have revealed that high levels of family/social support had a positive role in the quitting of smoking (Hyland, et al, 2004; Yang, et al.,2009), especially in subjects whose partners participated in their attempt in cooperation participation or reinforcement. And longer duration of previous quit attempts were associated with successful smoking cessation (Li, et al., 2010; Rice, et al., 1996). Moreover, four significant sub-dimensions of processes of change factors were predictors of quitting smoking in this study. Consciousness raising was defined as the component that forced smokers to change their smoking behavior at each stage. The results identified that “consciousness raising” had the highest score of four processes of change that can distinguish between subjects moving to another pre-abstinence stage and subjects moving to an abstinence stage. counter conditioning was defined as a smoker substituting healthy behaviors for smoking, such as nicotine replacement therapy. The successful quitters showed a decrease in the use of experimental processes and an increase in behavioral processes, especially in counter-conditioning. This result is

also consistent with Carlson et al.2003, who suggested that using counter-conditioning process factors increases more successful quitters at 3-months of smoking cessation rates. In contrast, social liberation and self-reevaluation factors were inversely correlated to quitting smoking. social liberation was defined as a smoker becoming aware of smoke-free alternatives in society. Policies and social activism are required to create environments in which a healthy alternative appeared as a social norm. Failure to quit was influenced by the process of change for each stage of quitting smoking, colleagues at work place that smoked were the most important factor in an employee's failure to quit, or return to smoking even after years of not smoking (Abdulla, 2005). Self-reevaluation was defined as a smoker evaluating his or herself image as a smoker or non-smoker. It is exemplified by a belief that one can change and make a firm commitment to change. Making New Year's resolutions and public commitments can represent this process. Smokers believe that one can change and make a firm commitment to change.

7. Conclusion and recommendations

The study showed that the most of RTN Personnel were in a precontemplation stage, action stage and contemplation stage respectively and length of past quit attempt, family support, conscious raising, social liberation, self-reevaluation and counter conditioning were predictive factors of quitting smoking. Due to the nature of the working environment for military personnel that requires many people being together, there are a lot of activities and recreation these personnel do together during the breaks or short sessions away from work. Smoking is one such activity. An environment where there is temptation to smoke among colleagues is one factor that hinders the success in quitting. This study provides further evidence in designing tailor interventions, the stage of change needs to be assessed prior to application of intervention programs in order to increase and maintain quitting smoking behavior among military population.

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